

IBOX-604-G2

NVIDIA® Jetson Orin™ Lightweight AI Drone Computer



- NVIDIA® Jetson Orin™ NX SoM with 1024 CUDA Cores
- 10-60VDC Input Supports 3S-14S Lithium Battery
- 2 x GMSL-2 Cameras Support
- Lightweight Compact Design
- Built-in 3-axis Accelerometer

Edge AI Application



2 x USB for GNSS or USB Peripherals

High-precision GNSS modules or other peripherals connection.



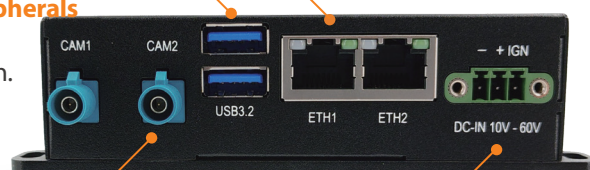
2 x Ethernet for High-speed Data Transmission

- 1 x 2.5GbE for the data transmission between the drone system
- 1 x GbE for high-resolution sensor or LiDAR connections



2 x GMSL-2 for Cameras

For quick-response, high-resolution video capture.



CAN FD/RS-232/UART for Drone System Communication

Offers multiple interfaces for the drone control system communication.



10-60VDC for 3S-14S Battery System

Supports 11V~58VDC input voltage with a power protection mechanism.

Specifications

System

Module

- NVIDIA® Jetson Orin™ NX 16GB (1024 CUDA cores + 8-core ARM Cortex-A78AE CPU + 16 GB LPDDR5)
- NVIDIA® Jetson Orin™ NX 8GB (1024 CUDA cores + 6-core ARM Cortex-A78AE CPU + 8 GB LPDDR5)
- NVIDIA® Jetson Orin™ Nano 8GB (1024 CUDA cores + 6-core ARM Cortex-A78AE CPU + 8GB LPDDR5)

Security

- Platform Security Controller (PSC), Security Engine (SE)

Watchdog

- Auto reset for unresponsive system

Sensor

- Built-in 3-axis accelerometer

Internal Expansion

M.2

- 1 x M.2 3042/3052 Key B for WWAN w/ dual SIM support
- 1 x M.2 2230 Key E for Wi-Fi/BT (For IBOX-604-G2W only)

Storage

Type

- 1 x M.2 2242 Key M for NVMe SSD

Power

Power Input

- DC 10-60V (nominal power input DC 11V/22V/58V) via 3-pin terminal block

Power Protection

- OCP, OVP, surge protection, reversed polarity protection

Power Management

- Ignition detection, Smart Power Management

RTC Battery

- Built-in RTC coin cell battery

Interface

Video

- 1 x HDMI® Type-A output

Audio

- 1 x HD audio output via HDMI®

Ethernet

- 1 x 2.5GbE (Intel® I226-IT) via RJ-45
- 1 x GbE (NVIDIA SoM) via RJ-45

Camera

- 2 x GMSL-2 via FAKRA

CAN

- 1 x CAN FD

USB

- 2 x USB 3.2

DIO

- 1 x DI, 1 x DO, I2C (optional)

GPIO

- 1 x UART w/ 3.3VDC (connector shared with CAN FD)

COM

- 1 x RS-232/422/485

Mgmt. Port

- 1 x USB type-C for system recovery (device only)

Software

Operating System

- NVIDIA® JetPack 6.2 or above (Jetson Linux and NVIDIA® development tools included)

Certification / Compliance

- CE, FCC Class A, UKCA

Environmental

Operating Temp.

- 25°C ~ 50°C (-13°F ~ 122°F) with 0.6 m/s airflow
- *Operating temperature varies by accessories installed.

Storage Temp.

- 40°C ~ 80°C (-40°F ~ 176°F)

Relative Humidity

- 10% RH ~ 90% RH (non-condensing)

Vibration (with SSD)

- MIL-STD-810H, Method 514.8, Procedure I, Cat.4 (Operating)
- IEC60068-2-64, random, 2.5G@5~500Hz, 1hr/axis

Shock (with SSD)

- MIL-STD-810H, Method 516.8, Procedure I, Trucks and semi-trailers=15G (11ms) with SSD (Operating)

Mechanical

Construction

- Aluminum Alloy

Antenna

- 3 x SMA connector mounting hole

Mounting

- Wall mounting

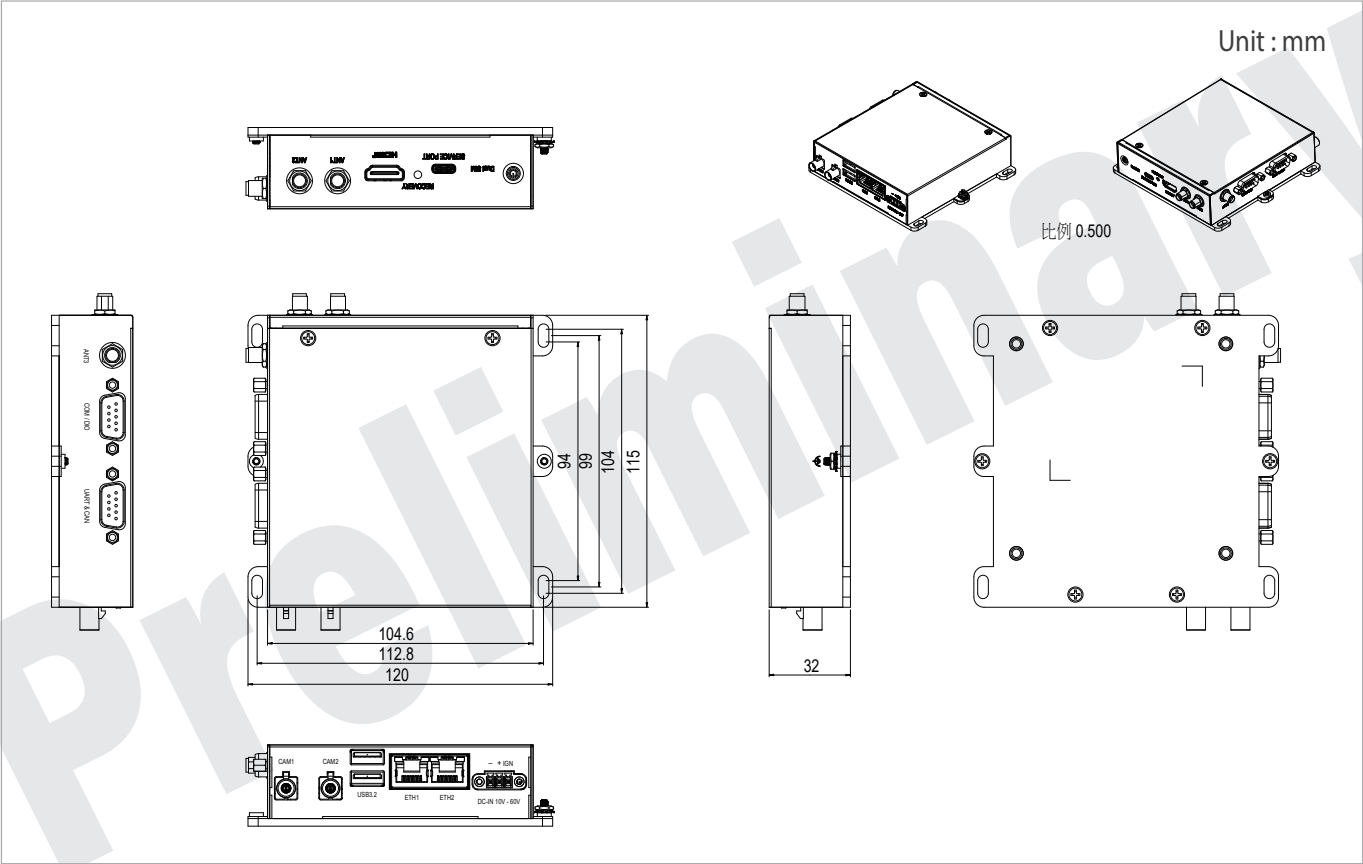
Net Weight

- < 333 g (Excluding enclosure)
- *Included enclosure w/o M.2 2230 slot (1 x SoM, 2 x DB-9 cable)

Dimensions (L x W x H)

- 120 x 115 x 32 mm (4.73 x 4.53 x 1.26 in.)

Dimensions



Ordering Information

Model Number	IBOX-604-G2-zzz (zzz=ONX16=Orin NX 16GB, zzz=ONX8=Orin NX 8GB IBOX-604-G2x-zzz (x=empty= w/o M.2 2230 slot, x=W=w/ M.2 2230 slot; zzz=ONX16=Orin NX 16GB, zzz=ONX8=Orin NX 8G, zzz=ON8=Orin Nano 8GB)
Description	NVIDIA® Jetson Orin™ NX SoM w/ 2 x GMSL / 1 x CAN FD / 1 x UART Lightweight AI Drone Computer
State of Origin	Made in Taiwan

Optional Accessories

Storage	M.2 2242 Key M NVMe SSD -40°C ~ 85°C
Wi-Fi (for option SKU)	M.2 2230 Key A-E Wi-Fi module, -40°C ~ 85°C
WWAN	M.2 3042/3052 Key B WWAN module, -40°C ~ 85°C
GNSS	M.2 2242 Key B GNSS module, -40°C ~ 85°C
Power Adapter	AC/DC 100-240V/12V 60W C14 DC plug power adapter

Supported Camera List

Brand	Camera Part Number	IBOX-601-M12X-00 IBOX-601-G2-00	IBOX-601-M12X-01 IBOX-601-G2-01	IBOX-602P-IP66-01
oToBrite	oToCAM264ISP Series (2MP, Sony IMX390)	V (4)	V (4)	V (2)
oToBrite	oToCAM260ISP Series (5.36MP, Sony IMX490)	V (4)	V (4)	V (2)
oToBrite	oToCAM223 Series (2.95MP, Sony ISX031)	V (4)	V (4)	V (2)
e-con Systems	STURDeCAM25 (2MP, Omsemi AR0234CS)	-	V (4)	V (2)
e-con Systems	STURDeCAM31 (3MP, Sony ISX031)	-	V (4)	V (2)
e-con Systems	STURDeCAM81 (8MP, Omsemi AR0821)	-	V (4)	V (2)
StereoLabs	ZED X Stereo (Dual 2MP)	Tested	V (2)	V (2)*
StereoLabs	ZED X One 4K (8.2MP)	-	V (4)	V (2)

Brand	Camera Part Number	IBOX-604-G2	IBOX-650P-IP66-01	IBOX-650P-T1-01
oToBrite	oToCAM264ISP Series (2MP, Sony IMX390)	V (2)	V (4)	V (4)
oToBrite	oToCAM260ISP Series (5.36MP, Sony IMX490)	-	V (4)	V (4)
oToBrite	oToCAM223 Series (2.95MP, Sony ISX031)	V (2)	V (4)	V (4)
e-con Systems	STURDeCAM25 (2MP, Omsemi AR0234CS)	V (2)	V (4)	V (4)
e-con Systems	STURDeCAM31 (3MP, Sony ISX031)	V (2)	V (4)	V (4)
e-con Systems	STURDeCAM81 (8MP, Omsemi AR0821)	V (2)	V (4)	V (4)
StereoLabs	ZED X Stereo (Dual 2MP)	V (1)	V (2)	V (2)
StereoLabs	ZED X One 4K (8.2MP)	V (2)	V (4)	V (4)

V: Supported
(n): Maximum number of camera connections